



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
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ARLINGTON, TEXAS 76011-8064

July 14, 2000

Gregg R. Overbeck, Senior Vice  
President, Nuclear  
Arizona Public Service Company  
P.O. Box 52034  
Phoenix, Arizona 85072-2034

SUBJECT: NRC'S PALO VERDE TRIENNIAL FIRE PROTECTION BASELINE INSPECTION  
REPORT NO. 50-528/2000-05; 50-529/2000-05; 50-530/2000-05

Dear Mr. Overbeck:

On June 12-16, 2000, the NRC conducted a fire protection triennial baseline inspection of your Palo Verde Nuclear Generating Station, Units 1, 2, and 3, facilities. The team leader presented these findings to you and members of your staff in an exit meeting on June 16, 2000, at the Palo Verde Nuclear Generating Station facility.

In this inspection, the NRC evaluated the effectiveness of activities conducted under your license as they related to implementation of your NRC-approved Fire Protection Program. Based on the results of this inspection, the NRC did not identify any findings.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

/RA/

Jeffrey L. Shackelford, Chief  
Engineering and Maintenance Branch  
Division of Reactor Safety

Docket Nos.: 50-528; 50-529; 50-530  
License Nos.: NPF-41; NPF-51; NPF-74

Enclosure:

NRC Inspection Report No.

50-528/00-05; 50-529/00-05; 50-530/00-05

cc w/enclosure:

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Docket Nos.: 50-528; 50-529; 50-530  
License Nos.: NPF-41; NPF-51; NPF-74  
Report No.: 50-528/2000-05; 50-529/2000-05; 50-530/2000-05  
Licensee: Arizona Public Service Company  
Facility: Palo Verde Nuclear Generating Station, Units 1, 2, and 3  
Location: 5951 S. Wintersburg Road  
Tonopah, Arizona  
Dates: June 12-16, 2000  
Team Leader: R. P. Mullikin, Senior Reactor Inspector  
Engineering and Maintenance Branch  
Inspectors: C. A. Clark, Reactor Inspector  
Engineering and Maintenance Branch  
P. A. Goldberg, Reactor Inspector  
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Approved By: Jeffrey L. Shackelford, Chief  
Engineering and Maintenance Branch  
Division of Reactor Safety

ATTACHMENTS:

Attachment 1: Supplemental Information  
Attachment 2 NRC's Revised Reactor Oversight Process

**SUMMARY OF FINDINGS**

Palo Verde Nuclear Generating Station, Units 1, 2, and 3  
NRC Inspection Report No. 50-528/2000-05; 50-529/2000-05; 50-530/2000-05

This report covers a 1-week onsite inspection by a team of four Region IV inspectors and two contractors during June 12-16, 2000. The report includes the results of the licensee's implementation of the NRC-approved fire protection program.

Cornerstones: Initiating Events and Mitigating Systems

There were no findings identified in this area.

## Report Details

Summary of Plant Status: Units 1, 2, and 3 operated at or near full power throughout the inspection period.

### 1. **REACTOR SAFETY**

Cornerstones: Initiating Events and Mitigating Systems

#### 1R05 Fire Protection

The purpose of this inspection was to review the Palo Verde Nuclear Generating Station, Units 1, 2, and 3, fire protection program for selected risk-significant fire areas. Emphasis was placed on verifying that the post-fire safe shutdown capability and the fire protection features were maintained free of fire damage to ensure that at least one post-fire safe shutdown success path was available. The inspection was performed in accordance with the new NRC regulatory oversight process using a risk-informed approach for selecting the fire areas and attributes to be inspected. The team leader and a Region IV senior reactor analyst used the Palo Verde Nuclear Generating Station, Units 1, 2, and 3, Individual Plant Examination for External Events (IPEEE) to choose several risk-significant areas for detailed inspection and review. The fire zones chosen for review during this inspection were:

- Fire Zone 5A (Train A ESF Switchgear Room)
- Fire Zone 5B (Train B ESF Switchgear Room)
- Fire Zone 7A (Channel A DC Equipment Room)
- Fire Zone 42B (Train B Electrical Penetration Room)
- Fire Zone 42C (Auxiliary Building 100' East Corridor Area)

For each of these fire zones, the inspection was focused on the fire protection features, the systems and equipment necessary to achieve and maintain safe shutdown conditions, determination of license commitments, and changes to the fire protection program. The primary inspection focus was on Unit 2. However, any differences between the units were considered in the review.

#### .1 Systems Required to Achieve and Maintain Post-Fire Safe Shutdown

##### a. Inspection Scope

The team reviewed the plant systems required to achieve and maintain a post-fire safe shutdown to determine if the licensee had properly identified the components and systems necessary to achieve and maintain safe shutdown conditions for each fire zone selected for review. Specifically, the review was performed to determine the adequacy of the systems selected for reactivity control, reactor coolant makeup, reactor heat removal, process monitoring, and support system functions. This team review included the fire protection safe shutdown analysis.

The team also reviewed the operators' ability to perform the necessary manual actions for achieving safe shutdown including a review of procedures, accessibility of safe shutdown equipment, and the available time for performing the actions.

The team reviewed the updated final safety analysis report and the licensee's engineering and/or licensing justifications (e.g., NRC guidance documents, license amendments, technical specifications, safety evaluation reports, exemptions, and deviations) to determine the licensing basis.

b. Issues and Findings

No findings were identified.

.2 Fire Protection of Safe Shutdown Capability

a. Inspection Scope

The team performed a plant walkdown of the fire zones selected for review. The team verified that the automatic fire detectors and automatic fire suppression systems associated with the zones selected were adequately installed in accordance with the code of record and would adequately detect, control, and suppress fires associated with the hazards of each selected fire zone. The team also reviewed code deviations associated with the fire zones selected for review. The team reviewed the placement and condition of portable fire extinguishers and fire hoses. The team observed a fire department drill to determine the adequacy of the simulated response to a fire affecting safe-shutdown equipment.

The team reviewed a selected sample of components to determine the adequacy of separation provided for power and control cabling associated with redundant trains of shutdown equipment. The review focused on the cabling of components associated with the auxiliary feedwater system, the chemical and volume control system, the safety injection and shutdown cooling system, the essential chilled water system, the essential cooling water system, the essential spray pond system, and the condensate storage and transfer system. Additionally, other valves making up a high-low pressure interface in the reactor coolant system were also evaluated. This evaluation included a sampling of components whose inadvertent operation due to fire may adversely affect the post-fire safe shutdown capability. The adequacy of separation provided for cables of equipment associated with essential safe shutdown functions was based on the following sources of information:

- Cable routing information obtained from the computerized cable and raceway information data base;
- Observations made by inspection team during plant tours; and
- Review of the Thermo-Lag upgrade documentation.



b. Issues and Findings

No findings were identified.

.3 Post-fire Safe Shutdown Circuit Analysis

a. Inspection Scope

The team reviewed the licensee's multiple high-impedance short-to-ground analysis (Calculation 13-EC-FP-204, "High Impedance Fault Analysis"). The purpose of the review was to determine the potential impact of fire-induced overloads on safe-shutdown equipment power supplies through consideration of the cumulative effect of multiple ground fault currents, each below the trip threshold of its protective device (fuse or breaker), and the resulting effect on the availability of the required power buses.

The team also reviewed the fuse/breaker coordination analysis for the 4.16-kV and 480-Vac switchgear boards required for post-fire safe shutdown and the vital low-voltage ac and dc buses. The purpose of this review was to verify that selective coordination exists between branch circuit protective devices (fuses, breakers, relays, etc.) and the bus feeder breaker/fuse to ensure that in the event of a fire-induced short circuit, the fault would be isolated before the feeder device trips. This review focused on Calculation 13-EC-PB-110, "Protection Coordination Study for Safe Shutdown Power and Control Circuits."

The team reviewed the fuse/breaker protection for non-safe shutdown electrical circuits on a sample basis. The purpose of this review was to determine if nonessential circuits routed in common enclosures with safe shutdown circuits could damage safe shutdown circuits due to effects from a fire.

The team also reviewed the licensee's spurious circuit analysis. The purpose of this review was to determine if spurious actuations could occur due to effects from a fire and compromise the functionality of the required safe shutdown systems.

In addition, reviews were made of the licensee's analysis related to NRC Information Notice 92-18, "Potential for Loss of Remote Shutdown Capability During a Control Room Fire," discussing the susceptibility of certain motor-operated valves to potentially damaging short circuits caused by fire.

b. Issues and Findings

No findings were identified.

.4 Alternative Safe Shutdown Capability

a. Inspection Scope

The team reviewed the licensee's systems required to achieve alternative safe shutdown to determine if the licensee had properly identified the components and

systems necessary to achieve and maintain safe shutdown conditions. The team also focused on the adequacy of the systems to perform reactor pressure control, reactor coolant makeup, decay heat removal, process monitoring, and support system functions.

b. Issues and Findings

No findings were identified.

.5 Operational Implementation of Alternative Shutdown Capability

a. Inspection Scope

The team performed a walkdown of the actions defined in Procedure 40AO-9ZZ19, "Control Room Fire," which was the procedure for performing a plant alternative shutdown from the remote shutdown panel and by manipulating equipment locally in the plant. The team verified that operators could reasonably be expected to perform the procedure actions within the identified applicable plant shutdown time requirements and that equipment labeling was consistent with the procedure.

The team reviewed the training program for licensed and non-licensed personnel to verify it included training on the plant alternative safe shutdown capability. Classroom lecture plans and a simulator scenario covering plant alternative safe shutdown capability training, along with associated "Attendance/Grade Summaries," were reviewed.

The team reviewed Procedure 40ST-9ZZ20, "Remote Shutdown Disconnect Switch and Control Circuit Operability," and a sample of associated completed surveillance packages. These reviews were performed to verify that: (1) the licensee conducted periodic operational surveillance tests of the plant alternative shutdown transfer capability, instrumentation, and control functions, and (2) the surveillances performed were adequate to show that if called upon, the plant alternative shutdown capability would be functional upon transfer to it. The team's reviews of the adequacy of communications and emergency lighting associated with these procedures are documented in Sections .6 and .7 of this report.

b. Issues and Findings

No findings were identified.

.6 Communications

a. Inspection Scope

The team reviewed the adequacy of the communication system to support plant personnel in the performance of alternative safe shutdown functions and fire department duties. The licensee credited the plant radio and the sound powered telephone systems for post-fire safe shutdown actions that require prompt control room operator response.

The team verified that radios and telephones were available and operational for emergency use by operators and fire department members by review of a sample of "Fire Test Packages." The team also verified that routine preventive maintenance was being done to assure that the radios were being maintained in an operable condition by review of a sample of repetitive task work orders.

b. Issues and Findings

No findings were identified.

.7 Emergency Lighting

a. Inspection Scope

The team reviewed the emergency lighting system required for safe shutdown activities in the selected fire zones to verify it would provide for adequate access to safe shutdown equipment and the ability to perform manual actions required to achieve and maintain hot shutdown conditions. The team also reviewed the adequacy of emergency lighting for performing actions required in Procedure 40AO-9ZZ19, "Control Room Fire," which included access and egress routes. The team reviewed test procedures and test data to verify that the fluorescent lights powered by inverters and 8-hour batteries, and the individual battery operated units were able to supply light for the required 8-hour period. The team reviewed calculations which determined the maximum temperatures at which the battery powered dual light units and the fluorescent lights would operate for 8 hours to verify operability under maximum ambient temperatures. The team reviewed vendor documentation and verified that the battery power supplies were rated with at least an 8-hour capacity. The team also verified that routine preventive maintenance was being performed to assure that the 8-hour battery powered lights were being maintained in an operable manner.

b. Issues and Findings

No findings were identified.

.8 Cold Shutdown Repairs

a. Inspection Scope

The team reviewed licensee's procedures to determine if any repairs were required to achieve cold shutdown. The team determined that the licensee did not require the repair of equipment to reach cold shutdown based on the safe shutdown methods used.

b. Issues and Findings

No findings were identified.

.9 Reactor Coolant Pump Oil Collection System

a. Inspection Scope

The team reviewed the updated final safety analysis report, design basis manual, and design drawings to determine whether the design of the lubrication oil collection system for the reactor coolant pumps collected all oil leakage and spray from all potential leakage points. The team also reviewed calculations, procedures, and a sample of “Fire Test Packages” to determine whether the system was being maintained in an operable manner.

b. Issues and Findings

No findings were identified.

.10 Compensatory Measures

a. Inspection Scope

The team reviewed the licensee’s current fire protection impairments (i.e., fire barriers, fire doors, fire suppression panels, etc.) to determine whether the compensatory measures were adequate and that action was being taken to return the equipment to operable status in a reasonable time.

b. Findings

No findings were identified.

.11 Identification and Resolution of Problems

a. Inspection Scope

The team reviewed the corrective action program procedures and samples of corrective action documents to verify that the licensee was identifying issues related to fire protection at an appropriate threshold and entering them in the corrective action program. The team reviewed selected samples of condition reports/disposition requests, corrective maintenance work orders, and fire system and components condition reports.

b. Findings

No findings were identified.

**4. OTHER ACTIVITIES**

40A6 Management Meetings

.1 Exit Meeting Summary

The inspection findings were presented to Mr. G. Overbeck, Senior Vice President, Nuclear, and other members of licensee management by the team leader in an exit meeting on June 16, 2000, at the Palo Verde Nuclear Generating Station, Units 1, 2, and 3, facility.

The team asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT 1

Supplemental Information

**PARTIAL LIST OF PERSONS CONTACTED**

Licensee

M. Bail, Fire Protection Section Leader, Maintenance Services  
M. Czarnylas, Fire Protection Operations  
D. Fan, Department Leader, Design Engineering  
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S. Grier, Section Leader, System Engineering  
R. Guron, Senior Engineer, Mechanical Design  
M. Hodge, Section Leader, Mechanical Design  
A. Huttie, Department Leader, Emergency Services Division - Programs  
B. Ide, Vice President, Nuclear production  
D. Kanitz, Senior Engineer, Regulatory Affairs  
S. Kesler, Section Leader, Electrical Design  
S. Koski, Fire Protection System Engineer, System Engineering  
A. Krainik, Director, Regulatory Affairs  
D. Lamontagne, Section Leader, Nuclear Assurance  
D. Marks, Section Leader, Nuclear Regulatory Affairs - Compliance  
R. Merryman, Senior Advisor, Operations  
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R. Sattelmaier, Senior Advisor, Fire Department  
C. Seaman, Director, Emergency Services Division  
K. Schrector, Section Leader, Civil Design  
M. Winsor, Director, Nuclear Engineering  
R. Younger, Department Leader, Nuclear Assurance

Others

F. Gowers, Site Representative, El Paso Electric Company  
E. Kleinsorg, Contractor Engineer

NRC

N. Salgado, Resident Inspector

## LIST OF DOCUMENTS REVIEWED

### Procedures

14DP-0FP02, "Fire System Impairments and Notifications," Revision 8

14DP-0FP10, "Radio Use," Revision 2

14DP-0FP20, "Department Repetitive Task Program," Revision 4

14DP-0TR01, "Fire Department Training Program Description," Revision 9

14DP-0TR02, "Fire Department Training Program Administration," Revision 13

30DP-9MP01, "Conduct of Maintenance," Revision 28

40AO-9ZZ19, "Control Room Fire," Revision 3

40DP-9ZZ19, "Operational Considerations Due to Plant Fire," Revision 3

40DP-9OP06, Appendix ZZ029, "Operations Department Repetitive Task Program," Revision 42

40DP-9OP19, "Locked Valve, Breaker, and Component Tracking," Revision 56

40EP-9EO10, "Appendix 18, Local ADV Operation," Revision 20

40EP-9EO10, Appendix 40, "Local Operation of AFA-P01," Revision 22

40ST-9ZZ20, "Remote Shutdown Disconnect Switch and Control Circuit Operability," Revision 1

73DP-0FP01, "Fire Protection Test Program Requirements," Revision 15

PD-0AP01, Chapter 13.0, "Fire Protection," Revision 2

### Fire Test Packages

14FT-9FP06, "Fire Equipment Locker and Emergency Equipment Cabinet Inspection," April 3, May 1, & May 29, 2000 (Units 1-3)

14FT-9QF01, "Fire Protection Test Program Sound Powered Telephone Functional Test," May 19, 1995, April 3, 1998, & February 5, 1999 (Unit 1); March 20, 1993, April 3, 1996, & February 5, 1999 (Unit 2); August 30, 1992, November 5, 1995 & October 8, 1998 (Unit 3)

31FT-9RC01, "RCP Lube Oil Collection System Inspection," October 26, 1996, April 15, 1998, & November 2, 1999 (Unit 1); October 9 and 27, 1997, and April 27, 1999 (Unit 2); November 8, 1998, and April 28, 2000 (Unit 3)

32FT-9QD01, "Exide Emergency Lighting System, 8 Hour Verification Testing for 1, 2, and 3EQDNN01," May 5, 2000 (Unit 1)

32FT-9QD06-1, "Holophane Emergency Lighting System 8 Hour Verification Testing for 1, 2, and 3EQDNN06," May 8, 2000 (Unit 1)

32FT-9QD20-3, "Appendix 'R' Emergency Lighting Fixture Discharge Test, Wall Mounted Types 'KE,' 'KF,' and 'KG'," May 7, 2000 (Unit 3)

32FT-9QF01, "PVNGS Two -Way Radio System, UPS Battery Test," November 4, 1999 (Unit 1)

38FT-9QK14, "Fire Detection/Protection System Supervised Circuits And Functional Test - Carbon Dioxide Panels," April 27, 2000 (Unit 1); February 9, 2000 (Unit 2); February 29, 2000 (Unit 3)

38FT-9QK17, "Fire Detection/Protection System Functional Test - Protectowire Model ACR 1603," March 3, 2000 (Unit 1); January 27, 2000 (Unit 2); February 15, 2000 (Unit 3)

38FT-9QK18, "Fire Detection/Protection System Supervised Circuits Test - Protectowire Model ACR 1603," March 7, 2000 (Unit 1); January 25, 2000 (Unit 2); February 9, 2000 (Unit 3)

38FT-9QK27, "Fire Detection/Protection System Functional Test -Honeywell One detector Type Panels," March 24, 2000 (Unit 1); February 4, 2000 (Unit 2); February 8, 2000 (Unit 3)

38FT-9QK28, "Fire Detection/Protection System Supervised Circuits Test - Honeywell One detector Type Panels," March 23, 2000 (Unit 1); February 2, 2000; (Units 2 & 3)

40FT-9QF02, "Fire Protection Program Radio Communications in Service Testing, "March 23, 1992, June 15, 1995, & January 30, 1998 (Unit 1); June 2, 1993, June 15, 1995, & January 30, 1998 (Unit 2); December 15, 1992, January 2 & 7, 1996, & September 13, 1998 (Unit 3)

Condition Report/Disposition Requests (CRDRs)

2-9-0200	98Q139	118480	118501	118508	118595
1-9-00118	98Q143	118487	118503	118545	118597
9-9-0912	99Q143	118490	118504	118570	118636
980561	118243	118495	118505	118576	118648



Calculations

<u>Number</u>	<u>Description</u>	<u>Revision</u>
13-CC-FB-001	Thermo-Lag Fire Barrier Evaluation	4
13-EC-FP-004	10 CFR 50 Appendix R Safe Shutdown Cable A Identification & Analysis	6
13-EC-FP-204	High Impedance Fault Analysis	0
13-MC-FP-315	Appendix R Safe Shutdown Equipment List	8
13-MC-FP-316	Appendix R Manual Action Feasibility	9
13-MC-FP-317	Appendix R Operational Considerations	5
13-MC-FP-318	Appendix R III.G/III.L Compliance Assessment	8
13-EC-PB-110	Protection Coordination Study for Safe Shutdown Power Control Circuits	8
13-MC-SG-314	Nitrogen Tank Pressure Requirements for ADV's	4
13-EC-QD-002	Ambient Temperature Limits for Emergency Lighting	1
13-MC-HA-259	Aux. Building Transient Analysis: Loss of HVAC	2
13-MC-HA-261	Maximum Indoor Temperature Without Essential HVAC	1
13-MC-HA-262	Temperature in MSSS Building during LOP	0
13-MC-HA-260	Loss of HVAC Room Temperatures Part 1 of 2	1
13-MC-HD-256	Transient Temperature in EDG Equipment Control Room	1
13-MC-RC-200	Maximum Leakage of Oil from the RC Pumps	1
13-MC-RC-308	RCP Lube Oil Collection Line Sizing	0
13-EC-QD-201	Exide Emergency Lighting System Load Evaluation	2
SA-13-C00-96-002	CEPAC Re-Analysis in Support of the USFAR Appendix R (Fire Protection) for Stretch Power and Leaking Unit 2 Auxiliary Spray Valve	NA
TA-13-C07-97-007	Re-Analysis of Appendix R Events in Support of Thermal Lag Reduction Project	NA

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
01-E-MAA-002	Unit Single Line Diagram	5
02-E-AFB-001	Elementary Diagram Auxiliary Feedwater System Auxiliary Feedwater Pump 2M-AFB-P01 & Thermocouples	3
02-E-AFB-003 Sh. 1	Elementary Diagram Auxiliary Feedwater System Aux Fdw Reg Valves Pump B to SG-1 & 2 2J-AFB-HV-30	5
02-E-AFB-003 Sh. 2	Elementary Diagram Auxiliary Feedwater System Aux Fdw Reg Valves Pump B to SG-1 & 2 2J-AFB-HV-31	5
02-E-AFB-004	Elementary Diagram Auxiliary Feedwater System Aux. Feedwater Regulating Valve 2J-AFA-HV-32	6
02-E-AFB-005	Elementary Diagram Auxiliary Feedwater System Aux Fdw Iso Valves Pmp B to SG-1 & SG-2 2J-AFB-UV-34 & 2J-AFB-UV-35 2J-AFB-UV-35	6
02-E-AFB-006	Elementary Diagram Auxiliary Feedwater System Aux. Feedwater Regulating Valve 2J-AFC-HV-33	5
02-E-AFB-007	Elementary Diagram Auxiliary Feedwater System Aux Fdw Turb Trip & Throttle Valve 2J-AFA-HV-54 & Thermocouples	9
02-E-AFB-010	Elementary Diagram Auxiliary Feedwater System Aux. Feedwater Isolation Valve 2J-AFA-UV-37	6
02-E-AFB-011	Elementary Diagram Auxiliary Feedwater System Aux. Feedwater Isolation Valve 2J-AFC-UV-36	7
02-E-CHB-003	Elementary Diagram Chemical and Volume Control System Boric Acid Makeup to Charging Pumps Valve 2J-CHN-UV-514	6
02-E-CHB-011	Elementary Diagram Chemical and Volume Control System RCP Controlled Bleed Off to RDT Valve 2J-CHA-HV-507	7
02-E-CHB-014	Elementary Diagram Chemical and Volume Control System RCP Controlled Bleedoff to VCT Valve 2J-CHA-UV-506	5
02-E-CHB-015	Elementary Diagram Chemical and Volume Control System RCP Controlled Bleedoff to VCT Valve 2J-CHB-UV-505	2
02-E-CHB-016	Elementary Diagram Chemical and Volume Control System Refuel Water Tank to Boric Acid Make-up Pumps Valve 2J-CHE-HV-532	2

<u>Number</u>	<u>Title</u>	<u>Revision</u>
02-E-CHB-024	Elementary Diagram Chemical and Volume Control System Charging Pump 1 2M-CHA-P01	6
02-E-CHB-025	Elementary Diagram Chemical and Volume Control System Charging Pump 2 2M-CHB-P01	6
02-E-CHB-026	Elementary Diagram Chemical and Volume Control System Charging Pump 3 2M-CHE-P01	3
02-E-CHB-028	Elementary Diagram Chemical and Volume Control System Charging Pumps to Regen Heat Exch Vlv 2J-CHA-HV-524	3
02-E-CHB-029 Sh. 1	Elementary Diagram Chemical and Volume Control System RWT to Train Safety Injection System Valve 2J-CHB-HV-530	3
02-E-CHB-029 Sh. 2	Elementary Diagram Chemical and Volume Control System RWT to Train Safety Injection System Valve 2J-CHA-HV-531	3
02-E-CHB-048	Elementary Diagram Chemical and Volume Control System Seal Inject Valves to Reactor Coolant Pumps 2J-CHE-FV-241, 242, 243, & 244	1
02-E-CHB-053	Elementary Diagram Chemical and Volume Control System Charging Pumps to Seal Inject HX Valve 2J-CHE-UV-231P	3
02-E-CHB-054	Elementary Diagram Chemical and Volume Control System Seal Injection Containment Iso Valve 2J-CHB-HV-255	2
02-E-CHB-072	Elementary Diagram Chemical and Volume Control System RWT Gravity Feed Line to Charging Pump Suction 2J-CHE-HV-536	4
02-E-CTB-001	System Condensate Transfer Pumps A & B, 2M-CTA-P01 & P01	3
02-E-ECB-001 Sh.1	Elementary Diagram Essential Chilled Water System Essential Chillers 2M-ECA-E01	10
02-E-ECB-001 Sh. 2	Elementary Diagram Essential Chilled Water System Essential Chiller 2M-ECB-E01	10
02-E-ECB-003 Sh. 1	Elementary Diagram Essential Chilled Water System Essential Chilled Wtr Circ Pump 2M-ECA-P01 & Thermocouples	5
02-E-ECB-003 Sh. 2	Essential Chilled Wtr Circ Pump 2M-ECB-P01 & Thermocouples	5
02-E-ECB-004 Sh. 1	Elementary Diagram Essential Chilled Water System Chilled Wtr Expansion Tk Make-up Valve 2J-ECA-LV-15	5

<u>Number</u>	<u>Title</u>	<u>Revision</u>
02-E-ECB-004 Sh.2	Elementary Diagram Essential Chilled Water System Chilled Wtr Expansion Tk Make-up Valve 2J-ECB-LV-16	5
02-E-EWB-001 Sh.1	Elementary Diagram Essential Cooling Water System Essential Cooling Water Pump A 2M-EWA-P01	4
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13-M-FPR-004	Appendix R Safety Function Diagram Auxiliary Building HVAC	1
13-M-FPR-005	Appendix R Safety Function Diagram Chemical and Volume Control System	3
13-M-FPR-006	Appendix R Safety Function Diagram Condensate Storage and Transfer System	0
13-M-FPR-007	Appendix R Safety Function Diagram Control Building HVAC	1
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13-M-FPR-016	Appendix R Safety Function Diagram Nuclear Cooling Water System	1
13-M-FPR-017	Appendix R Safety Function Diagram Nuclear Sampling System/Ex-Core Neutron Monitoring System	1
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Updated Final Safety Analysis Report

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Audits and Surveillances

Emergency Services Division - 1997 Fire Protection Program Audit Report 99-007 and Integrated Self-Assessment

Nuclear Assurance Division - Fire Protection Program Audit Report 99-007 and Integrated Self-Assessment

Fire System Component Condition Reports (FSCCR's)

1-97-0023	1-97-0044	1-97-0053	1-97-0065	1-97-0073
1-97-0078	1-97-0099	1-97-0105	1-97-0108	1-97-0135
1-97-0152	1-98-0006	1-98-0015	1-98-0033	1-98-0068
1-98-0138	1-98-0141	1-98-0163	1-98-0169	1-98-0173
1-98-0184	1-98-0193	1-98-0195	1-98-0200	1-99-0003
1-99-0005	1-99-0014	1-99-0082	1-99-0107	1-99-0132
1-99-0024	1-00-0010			

Work Orders

00666627  
00679747  
00769785  
00770950  
00801219  
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00801312  
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00852933

Work Order Tasks

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056244	Inspect/Test Emergency Dual Lighting	February 14, 2001
069550	Perform Monthly Inspection of UPS Emergency Lights	December 21, 2000
039215	Perform Monthly Maintenance of 125VDC Lights	December 19, 2000
039292	Quarterly Inspection of 125 VDC Emergency Lights	February 13, 2001
083021	Block Relamp Emergency Fluorescent Lights	August 16, 2001
082888	Block Relamp Emergency Fluorescent Lights	May 1, 2001

Vendor Information

Section 51.10, EXIDE Calcium Flat Plate Type CC General Purpose

Section 26.16, Absolyte IIP Tower Modules

CB-43, Performance Data Middle Distance Cells, Alcad Standby Batteries

Vendor Manual File 13-10407-E103-16.02.3-1-2, Industrial Sound Power Telephone Systems

Miscellaneous Documents

Cable routing data for numerous components

Design Criteria Manual, Revision 8

Design Criteria Manual, "QD Emergency Lighting System," Revision 13

Design Basis Manual - Fire Protection, Revision 5

Design Basis Manual, "QD Emergency Lighting," Revision 7

Fire Drill Evaluation 2000, dated June 14, 2000

NNR9902-XC-002-000, "NLCT Cycle NNR99-02, Classroom Lecture," dated April 30, 1999

NLR99-02-RC-001-000, "Requal Training Cycle NLR99-02, Classroom Lecture," dated May 3, 1999

NLR99-02-RS-003-003, "Requal Training Cycle NLR99-02, Simulator Scenario," dated June 16, 1999

Operations Department Repetitive Task ZZ029 (Unit 1), dated November 16, October 24, August 24, July 27, 1999, June 29, 1999

Operations Department Repetitive Task ZZ029 (Unit 2), dated July 27, June 29, June 1, 1999

Operations Department Repetitive Task ZZ029 (Unit 3), dated May 31, May 3, 2000, November 17, October 20, September 21, August 24, 1999

Ovunc, H. and P. Zavadviker, "Multiple High Impedance Fault Analysis and Resolution for Nuclear Power Facilities," Proceedings of the American Power Conference, Volume 52, 1990 (346-351)

Pre-Fire Strategies Manual, Revision 12

PVNGS IPEEE, Chapter 4, "Internal Fires," Revision 0

Report Listing Open FSCCRs for Units 1, 2, and 3, dated June 13, 2000

T7.0.100-1, "Component List - Remote Shutdown Disconnect Switches," dated August 13, 1998

T7.0.200-1, "Component List - Remote Shutdown Control Circuits," dated August 13, 1998

TRM 3.11.100, "Fire Detection Instrumentation Technical Requirements Manual," Revision 4

102-02493-WFC/JNI, "10 CFR 50 Appendix R New and Revised Deviations," dated April 29, 1993

43ST-3ZZ20, "Unit 3 Completer Surveillance Test Package," dated October 21, 1998

43ST-3ZZ20, "Unit 1 Completed Surveillance Test Package," dated November 4, 1999

43ST-3ZZ20, "Unit 3 Completed Surveillance Test Package." dated April 17, 2000

## ATTACHMENT 2

### **NRC's REVISED REACTOR OVERSIGHT PROCESS**

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

#### **Reactor Safety**

- Initiating Events
- Mitigating Systems
- Barrier Integrity
- Emergency Preparedness

#### **Radiation Safety**

- Occupational
- Public

#### **Safeguards**

- Physical Protection

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection Findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN Findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE Findings indicate issues that are of low to moderate safety significance. YELLOW Findings are issues that are of substantial safety significance. RED Findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin, but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner, which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.